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TECHNICAL NOTES
of the
ALASKA FOREST RESEARCH CENTER
U. S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE

No. 34 JUNEAU, ALASKA

A Record of Spruce Cone Insects in Alaska

Natural regeneration of harvested timber lands is influenced by a number of adverse factors. One of these is the destruction of seeds by insects. During the spring of 1955 investigations were initiated to determine: (1) the kinds and numbers of cone insects present in Alaska's spruce trees; (2) the role played by the various insects within the cones; and (3) the amount of damage these insects caused to the seed crop. This paper presents information on the kinds and number of insects found within the cones.

Five hundred cones of each spruce species present were picked at each of six locations during the first few days in May and sent via air freight to Juneau. Upon arrival, 250 cones were dissected to determine the frequency of cone moth larvae and 250 cones were placed in closed muslin trays for adult insect emergence. Insects began to emerge from cones in the trays during the middle of May and emergence continued for approximately one month.

Results of the cone dissections and rearings are presented in tables 1 and 2.

Identifications were made by the following specialists: (1) Diptera, Plectops sp. by C. W. Sabrosky; (2) Eulophidae, Pteromalidae, Torymidae, by B. D. Burks; (3) Platygasteridae by C.F.W. Muesebeck; (4) Braconidae, Ichneumonidae by L. M. Walkley.

Table 1.--Percent infestation of cones[1/] and frequency distribution within cones of the cone moth Laspeyresia[2/]. Based on the dissections of 250 cones per tree species at the locations indicated

Tree species	Location	Cone crop abundance	Percent infested	Number of larvae per cone							
				0	1	2	3	4	5	6	7
				Number of cones							
Picea sitchensis	Juneau	Very light	3.0	3	4	0	0	0	0	0	0
" "	Cordova	Moderate to abundant	54.0	22	76	30	7	0	0	0	0
" "	Seward	Abundant	79.2	37	48	47	26	25	10	2	3
" "	Homer	"	52.0	28	49	22	16	14	1	0	0
" x lutzii[3/]	Homer	"	23.5	20	31	6	2	0	0	0	0
" glauca	Homer	"	0.0	0	0	0	0	0	0	0	0
" "	Anchorage	"	37.0	3	72	17	0	0	0	0	0
" "	Fairbanks	"	4.0	0	11	0	0	0	0	0	0

1/ Cone crop of 1954, dissected in May 1955.
2/ Tentatively identified as Laspeyresia youngana Kearfott
3/ Natural hybrid of Picea glauca x sitchensis.
4/ Cones containing 0 moth larvae showed typical moth damage and in many cases larval parasitism was evident.

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W. F. McCambridge, Entomologist

Table 2.--Insect recovery from spruce cones collected in May 1955. Recovery in each case from 250 cones (Multiple emergence from one parasitic insect host and/or cone host was common)

	Juneau	Cordova	Seward	Homer			Anchorage	Fairbanks
	Sitka spruce	Sitka spruce	Sitka spruce	Sitka spruce	Lutz spruce	white spruce	white spruce	white spruce
	Number of insects							
Lepidoptera								
Eucosmidae (Olethreutidae)								
* Laspeyresia sp.	3	27	127	44	11	0	19	19
Diptera								
*Cecidomyiidae	62	34	11	9	19	4	16	68
Larvaevoridae (Tachinidae)								
/Plectops sp. 1/		7	16	7			13	
Hymenoptera								
Eulophidae								
/Aprostocetus sp.	9	11	1	1	9	1	46	50
/Tetrastichus sp.			1			2	14	56
/Other eulophids							3	2
Platygasteridae								
/Platygaster spp. 2/	4	45	10	1	3		37	124
Pteromalidae								
#Amblymerus spp.	5	2	8		4		24	2
#Habrocytus sp.						1		
#Roptrocerus sp.						2	15	4
Torymidae								
*Megastigmus piceae			3					
/Monodontomerinae							3	
*Torymus sp.	5	32	8	4	0	5	12	12
Braconidae								
/Bracon sp.							1	
Ichneumonidae								
/Calliephialtes sp.	1	2	1				3	
/Campoplex sp.			96	5			11	
/Ephialtes sp.	6	10						5
/Scambus sp.			3					
°Other	3 3/	1 4/	1 5/	1 5/			2 5/	

1/ New species
2/ Three species, apparently new
3/ Chalcid spp.
4/ Staphylinidae
5/ Thrips

Probable relationship of the reared insects:
* Damages cones and/or seeds
/ Parasitic on cone and seed destroying insects
Parasitic or hyperparasitic on other insects
° Association unknown

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